

for it is only really *prime* hops that will command a ready sale at top prices. Begin the work early; set the poles as soon as the frost is out of the ground, then loosen the crown of the hill with a garden fork or pronged hoe, and take out such sets or runners as it may be desirable to set aside for future use, or for sale to those desiring to make plantations. This done carefully, cover over the young buds now exposed, with a covering of earth sufficient to shield them from spring frosts. Then apply some good fertilizer—either superphosphate or a mixture composed of equal parts of unleached wood ashes and plaster, giving half a pint of the material to each hill, and applying it to each as fast as cleaned out and the buds re-covered. The earlier this is done the better, for if neglected till late it is of little value. Everything depends on having a good start early. The mixture of ashes and plaster is said to be very fertilizing to the hop, and at the same time disagreeable to the hop louse, often preventing its appearance to any extent.

Manufacture of Beet-root Sugar for Farmers' Use.

INTRODUCTORY REMARKS.

Under this head I propose to place before my brother farmers a series of three articles:—

First—The growth and cultivation of the beet root crop, the yield per acre, and the effect on the land, with some general information relative to the mode of prosecuting this branch of agriculture in Britain.

Secondly—The machinery required, such as may be suitable for farmers to enable them to prosecute the enterprise on a small scale on their own farms, bearing in mind at the same time the fact that all must be done at very little expense at the outset, or no farmer will feel justified in going into it. As the outlay requisite, even on this reduced scale, might be more than one farmer would desire to make, if depending alone on his own consumption, the idea of one such factory, conducted on this principle, on every five or six farms, similar to cheese factories, would meet this difficulty.

Thirdly—I propose describing the process of manufacture, so far as to enable each farmer who may be able to make the outlay (after having grown a few acres of beets and erected some inexpensive machinery) to manufacture them into a useful family syrup, or coarse sugar, adapted for the sweetening so much wanted and so often used in all the farm houses in Canada, and without which no Canadian housekeeping is complete. The spare time that would occur after his own work of manufacturing was done could be filled up by doing the same thing for his neighbours.

It may be argued that the farmer has the maple sugar, and wants no other for home use; but I am well posted on this particular head, having made maple sugar for many years, and although I fully endorse the idea of its being very advisable to make it, yet I am prepared to show that beetroot sugar can be furnished at half the cost—apart from the fact that thousands of people in Canada have no sugar bush, and the manufacture is at the best of times very precarious, and often can only be conducted during a few days in each year.

The manufacture of beet root sugar has of late occupied the attention of the farmers in Canada, as well as that of the commercial world. There are many instances of its success in the United States as well as in Britain, and there is now a bill before the legislature of this country to incorporate a company for its manufacture in the usual way.

The profits of this enterprise are estimated at from 30 to 40 per cent. on the capital engaged, and probably it will be found fully up to this mark. These profits are, however, entirely based on the presumption that the roots can be grown and delivered at the factory at \$4 per ton of 2,240 lbs.

Now, we will set aside any doubt or controversy on this subject. When the supply is required to be hauled several miles, during all sorts of weather, and under the disadvantage of muddy fall roads, it may be that this price would not be found to pay the farmer. But certainly the roots can be delivered at the farmer's own barn, or within a mile of it at some neighbour's, at that price. It will amount to about \$4 a two horse load, and such a load can be repeated from the field many times daily, and leave a good profit for raising them. And this is apparent from the fact that this is the price in England, where the delivery is often extended several miles, and the rent of the land on which the roots are grown is often as much as £2 to £3 per acre, the soil not being one jot more favourable to the production of the root than ours.

So, setting aside, then, any doubts of the factory paying the stockholders, there is no doubt whatever that the raising of 12 to 18 tons of roots to the acre, and disposing of them under the above circumstances, would amply repay the producer.

Experience has fully proved that the cake, when deprived of the sugar and water, is very nearly, if not quite as nutritious, as the roots before being manufactured. One great reason for this is that they contain eighty to ninety per cent of water, and cattle do not do well on this food alone, nor when forced to consume so large a portion of liquid to obtain about fifteen per cent. of dry food; and the sugar that has been extracted from the roots in process of manufacture does not prove an economical source of fat-forming food, when it can be put to other uses, as there are many much cheaper. Nor does it equal other food for making milk, as cows will not do as well on it as other stock, and,

moreover, numberless experiments prove the absolute necessity of returning to the land all the cake first raised, or certain depreciation is the result. To such an extent did we carry this at home that we did not allow the greens, after being cut off, to be eaten by cattle, as they were thus carried off the land, and the loss of potash by this means was enormous. Nothing that I am aware of will yield as much potash from the same weight of ash as the refuse of beet root.

We always ploughed all the greens under as soon as the crop was harvested, and forty bushels of excellent wheat was the invariable result of the following crop. The manure from the consumption of the roots was in our case always used to produce the next crop of beets.

Now, therefore, we will assume these facts, and look deeper into the interests of the farmer individually.

Having followed the idea so far of raising the roots at a profit, and being well aware that an ordinary good crop often reached fifteen to eighteen tons an acre, we will see if he cannot afford to manufacture the sugar direct.

The farmer will not, probably, with such appliances as he may possess, make a good or merchantable article, but directly the want arises there will be no lack of capital, enterprise, or invention, to complete the manufacture of a prime article of commerce. The supply of such has always followed in the wake of the demand. I have for many years lived in the country in Canada, and well know that a plan by which any wholesome sweet could be manufactured for use in a farmer's own family, be it ever so coarse, would be a most welcome boon.

We in the country have plenty of milk, butter, cream, eggs, meat and flour, but we have no practical way of obtaining sugar without buying it—excepting from the very partial supply of maple sugar—and one great item in our store bills is for sugar alone, that is, if we indulge in it—and we all wish to do so, and generally will have it.

Now I maintain that the growth and manufacture of beet root, with its luxury in house-keeping, and cattle food of the residue, is quite within reach of the farmer who can and does farm one hundred acres of good land, if he has the ordinary appliances, and intelligence and ability to make use of them. Now, if all this can be shown, and a practical scheme pointed out, we may safely calculate on the immediate benefit to be derived. The necessity for hauling the beet root will prevent its extensive growth, unless in the immediate neighbourhood of some factory. If a team has to go five miles with a load of one ton—which work is usually to be done at the very worst time of the year for short days and bad roads—there will be little else done that day, and the cost of such a day's work would not be at all remunerative under \$150, which forms a most serious charge on the gross receipts of \$4 for the load. Every-